WisDOT LRFD Training **LRFD for WisDOT Bridge Structures**

Presented by: Michael Baker Jr., Inc. **Sponsored by: Wisconsin DOT**

Course Schedule

Day 1

SESSION I: INTRODUCTION

			Est. Time	Topic	
8:00 AM	-	8:05 AM	0:05	I-1	Registration
8:05 AM	-	8:15 AM	0:10	I-2	Opening Remarks and Introductions

SESSION 1: GENERAL SUPERSTRUCTURE DESIGN CONSIDERATIONS

				Topic	
8:15 AM	-	8:30 AM	0:15	1-1	Design Philosophies and Design Codes
8:30 AM	-	9:15 AM	0:45	1-2	Limit States, Loads and Load Combinations
9:15 AM	-	10:00 AM	0:45	1-3	Structural Analysis
10:00 AM	-	10:15 AM	0:15		*Break*
10:15 AM	-	11:00 AM	0:45	1-3	Structural Analysis (Con't)
11:00 AM	-	11:45 AM	0:45	1-4	Deck Design
11:45 AM	-	12:45 PM	1:00		*Lunch*

SESSION 2: CONCRETE SLAB SUPERSTRUCTURE DESIGN

				Topic	
12:45 PM	-	1:30 PM	0:45	2-2s	Flexure and Shear Resistance for Concrete Members
1:30 PM	-	2:00 PM	0:30	W-1	WisDOT Concrete Slab Design Concepts and Policies
2:00 PM	-	2:45 PM	0:45	Ex-1	Concrete Slab Design Example
2:45 PM	-	3:00 PM	0:15		*Break*

SESSION 3: PRESTRESSED CONCRETE SUPERSTRUCTURE DESIGN

				Topic	
3:00 PM	-	3:30 PM	0:30	4-1	Fundamentals of Prestressed Concrete
3:30 PM	-	4:00 PM	0:30	4-3	Prestressed Concrete Bridge Materials and Prestressing Losses
4:00 PM	-	4:30 PM	0:30	5-1	Flexure Design at Service Limit State

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Day 2

SESSION 3: PRESTRESSED CONCRETE SUPERSTRUCTURE DESIGN (CON'T)

			Est. Time	Topic	
8:00 AM	-	8:30 AM	0:30	5-3	Flexure Design at Strength Limit State
8:30 AM	-	9:30 AM	1:00	Ex-2	Prestressed Concrete Girder Design Example
9:30 AM	-	9:45 AM	0:15		*Break*
9:45 AM	-	10:15 AM	0:30	6-1	Continuous Prestressed Superstructures
10:15 AM	-	10:45 AM	0:30	Ex-3	Continuous Prestressed Concrete Girder Design Example

SESSION 4: STEEL I-GIRDER DESIGN

				Topic	
10:45 AM	-	11:45 AM	1:00	3-1	Fundamental Concepts
11:45 AM	-	12:45 PM	1:00		*Lunch*
12:45 PM	-	1:15 PM	0:30	3-1	Fundamental Concepts (Con't)
1:15 PM	-	2:00 PM	0:45	3-2	Strength Limit State Verifications - Flexure
2:00 PM	-	2:30 PM	0:30	3-3	Strength Limit State Verifications - Shear
2:30 PM	-	2:45 PM	0:15		*Break*
2:45 PM	-	3:00 PM	0:15	3-3	Application Exercise - Strength Limit State Verifications - Shear
3:00 PM	-	3:45 PM	0:45	3-4	Fatigue Limit State Verifications
3:45 PM	-	4:00 PM	0:15	3-5	Service Limit State Verifications
4:00 PM	-	4:45 PM	0:45	3-6	Constructibility Verifications

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Day 3

SESSION 4: STEEL I-GIRDER DESIGN (CON'T)

			Est. Time	Topic	
8:00 AM	-	8:15 AM	0:15	3-6	Application Exercise - Constructibility Verifications
8:15 AM	-	8:30 AM	0:15	3-7	Design for Wind Loads During Construction
8:30 AM	-	9:30 AM	1:00	3-8	Stiffener and Shear Connector Design
9:30 AM	-	9:45 AM	0:15		*Break*
9:45 AM	-	10:30 AM	0:45	3-9	Cross Frame and Welded Connection Design
10:30 AM	-	11:30 AM	1:00	3-10	Bolted Splice Design
11:30 AM	-	11:45 AM	0:15		Steel Superstructure Design Review
11:45 AM	-	12:45 PM	1:00		*Lunch*

SESSION 5: BEARING DESIGN

				Topic	
12:45 PM	-	1:00 PM	0:15	8-1	Introduction
1:00 PM	-	1:30 PM	0:30	8-2	Design of Elastomeric Bearings
1:30 PM	-	2:00 PM	0:30	8-3	Design of Pot Bearings

SESSION 6: LOAD RATINGS

				Topic	
2:00 PM	-	2:30 PM	0:30	W-2	WisDOT Load Rating Practices and Policies
2:30 PM	-	2:45 PM	0:15		*Break*
2:45 PM	-	3:15 PM	0:30	W-2	WisDOT Load Rating Practices and Policies (Con't)
3:15 PM	-	4:15 PM	1:00	Ex-4	LRFR Concrete Slab Load Rating Design Example

SESSION 7: LRFD THEORY FOR GEOTECHNICAL DESIGN

				Topic	
4:15 PM	-	4:30 PM	0:15	3-1s	Overview of Soil and Rock Materials

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Day 4

SESSION 7: LRFD THEORY FOR GEOTECHNICAL DESIGN (CON'T)

			Est. Time	Topic	
8:00 AM	-	9:00 AM	1:00	3-3A	Deep Foundations - Selection and Resistance Factors
9:00 AM	-	10:00 AM	1:00	3-3B	Deep Foundations - Strength Limit State
10:00 AM	-	10:15 AM	0:15		*Break*

SESSION 8: ABUTMENT DESIGN AND DETAILING

				Topic	
10:15 AM	-	11:00 AM	0:45	4-2s	Abutment Configurations and Loadings

SESSION 9: PIER DESIGN AND DETAILING

				Topic	
11:00 AM	-	11:45 AM	0:45	5-2s	Pier Configurations and Loadings
11:45 AM	-	12:45 PM	1:00		*Lunch*
12:45 PM	-	1:30 PM	0:45	5-2s	Pier Configurations and Loadings (Con't)
1:30 PM	-	1:45 PM	0:15	5-3s	Strength Design of Deep Foundation
1:45 PM	-	2:30 PM	0:45	5-5s	Pier Cap Design Using the Strut-and-Tie Model
2:30 PM	-	2:45 PM	0:15		*Break*
2:45 PM	-	3:45 PM	1:00	5-5s	Pier Cap Design Using the Strut-and-Tie Model (con't)
3:45 PM	-	4:15 PM	0:30	5-6s	Pier Shafts / Bent Columns
4:15 PM	-	4:30 PM	0:15		Course Wrapup